

CLAIMS:

1. A scanning display apparatus (10), characterized in that the apparatus (10) includes:
 - (a) a display (70) operable:
 - (i) to receive one or more driver signals and generate corresponding visual
5 information for presentation on the display (70); and
 - (ii) to sense radiation received at the display (70) and generate one or more
sensing signals corresponding to a region proximate to the display (70); and
 - (b) computer hardware (80) coupled to the display (70) for generating the one or
more driver signals for the display (70) and for receiving the one or more sensing signals
10 from the display (70), the computer hardware (80) being operable to provide an interactive
user interface (UI) at the display (70).
2. An apparatus (10) according to Claim 1, the apparatus being arranged to
15 identify positions of one or more objects (320) placed in proximity of the display (70) by way
of ambient illumination to the apparatus (10) obscured by the one or more objects (320).
3. An apparatus (10) according to Claim 1, wherein the display (70) is operable
to generate light radiation for illuminating one or more objects (320) placed in proximity to
or on the display (70), and also for receiving at least part of the light radiation reflected from
20 the one or more objects (320) so as to enable the apparatus (10) to assimilate a scanned image
of the one or more objects (320).
4. An apparatus (10) according to Claim 1, wherein the computer hardware (80)
is operable to execute a first coarser scan (620) to determine spatial location of the one or
25 more objects (320) on or in proximity of the display (70), and then execute a second finer
scan (660) to assimilate finer details of the one or more objects (320).
5. An apparatus (10) according to Claim 4, wherein the computer hardware (80)
is operable to present a representation of the one or more objects (320) in a region of the

display (70) in which the one or more objects (320) were placed during scanning as confirmation of successfully completed scanning.

6. An apparatus (10) according to Claim 1, the apparatus (10) being operable to
5 sense one or more objects (320) when placed upon or positioned in proximity to the display (70) and obscuring at least part of the display (70), and to adapt the user interface (UI) to use those parts of the display (70) which are unobscured.

7. An apparatus (10) according to Claim 6, wherein the computer hardware (80)
10 is operable to de-energize those parts of the display (70) which are obscured by one or more objects (320) placed thereupon for reducing power dissipation within the display (70).

8. An apparatus (10) according to Claim 6, arranged to present the user interface (UI) in squeezed format when an unobscured active region of the display (70) is
15 insufficiently large to include all of the user interface (UI).

9. An apparatus (10) according to Claim 8, wherein the user interface (UI) includes a scrolling feature for use in accessing squeezed parts of the user interface (UI) presented on the display (70).
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10. An apparatus (10) according to Claim 6, wherein a minimum display size limit for the user interface (UI) is defined in the computer hardware (80), such that obscuring more of the display (70) than defined by the display size limit causes the computer hardware (80) to present at least part of the user interface (UI) in a squeezed format.
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11. An apparatus (10) according to Claim 1, the apparatus (10) being arranged to present the user interface (UI) comprising a plurality of user interface features, the computer hardware (80) being provided with a priority identifier for each of the features determining which of the features to omit from presentation in the user interface (UI) in a situation where
30 at least part of the display (70) is obscured.

12. An apparatus (10) according to Claim 1, wherein the computer hardware (80) in conjunction with the display (70) is operable to identify one or more objects (320) in proximity to or in contact with the display (70) and invoke one or more corresponding

software applications for executing in the computer hardware (80) in response to placement of the one or more objects (320).

13. An apparatus (10) according to Claim 12, wherein the one or more software applications are operable to generate one or more animated icons on the display which appear in surrounding spatial proximity to the one or more objects (320) placed on the display (320), thereby providing a visual acknowledgement that the computer hardware (80) has identified presence of the one or more objects (320).
14. An apparatus (10) according to Claim 1, wherein the display (70) comprises one or more pixel devices (150) capable of both:
- (a) generating or transmitting illumination; and
 - (b) sensing illuminating incident thereupon,
- the one or more pixel devices (150) being fabricated using one or more of:
- (c) liquid crystal display devices (LCD) with associated thin-film-transistors (TFT) configured to function as a light sensor; and
 - (d) polyLED technology.
15. An apparatus (10) according to Claim 1 adapted for use in one or more of the following applications:
- (a) a contact type scanner;
 - (b) webtables;
 - (c) interactive tables, for example e-tables;
 - (d) automatic vending machines control panels;
 - (e) security access panels;
 - (f) interactive control panels in vehicles;
 - (g) electronic design drawing boards;
 - (h) interactive advertisement or information displays;
 - (i) childrens' interactive toys and games;
 - (j) teaching aids;
 - (k) television monitors; and
 - (l) computer monitors.
16. A method of operating a scanning display apparatus (10) including:

- (a) a display (70), characterized in that the method includes steps of:
- (i) receiving one or more driver signals at the display (70) and generating corresponding visual information for presentation on the display (70); and
 - (ii) sensing radiation received at the display (70) and generating one or more corresponding sensing signals corresponding to a region proximate to the display (70); and
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- (b) in computer hardware (80) coupled to the display (70), generating the one or more driver signals for the display (70) and receiving the one or more sensing signals from the display (70), the computer hardware (80) being operable to provide an interactive user
- 10 interface (UI) at the display (70).

17. A method according to Claim 16, further comprising a step of using pixel devices (150) of the display (70) to generate light radiation for illuminating one or more objects (320) placed in proximity to or on the display (70), and also for receiving at least part
- 15 of the light radiation reflected from the one or more objects (320) so as to enable the apparatus (10) to assimilate a scanned image of the one or more objects (320).